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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/772,079

02/03/2004

Oscar E. Agazzi

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EXAMINER

CORRIELUS, JEAN B

ART UNIT

PAPER NUMBER

2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/772,079	Applicant(s) AGAZZI ET AL.	
	Examiner Jean B. Corrielus	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,7,11,15,17-19,23,27 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,11,15,17-19,23,27 and 31-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: please update the status of the related applications mentioned in the specification.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 7, 11, 17-19, 23, 27 and 33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 8,

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and 14 of U.S. Patent No. 6,201,831. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application is fully encompassed by claim 1 of the US Patent. Given that fact, it would have been obvious to one skill in the art to only claim a few features of claim 1 of the US patent as a new claim 1 of the instant application so as to minimize cost to implement the claimed invention since it would have included less features therefore would have been less complex.

As per claims 2 and 18, the equalizer inherently does not enhance noise as equalizer is a type of filter that reduces or minimizes noise.

Claim 3 of the instant application is fully encompassed by claim 1 of the US Patent. The analysis applied to claim 1 applies equally to claim 3.

As per claims 7 and 23, the non-adaptive filter inherently eliminates noise and intersymbol interference from the incoming signal introduced by a pulse shaping filter.

As per claim 11, the US patent does not teach that the gain of the feedforward filter is programmable. However, it would have been obvious that the adjustment of the gain of the feedforward equalizer would have been programmable in order to enhance system flexibility.

Claim 17 of the instant application is fully encompassed by claim 8 of the US Patent. The analysis applied to claim 1 applies equally to claim 17.

Claim 19 of the instant application is fully encompassed by claim 8 of the US Patent. The analysis applied to claim 1 applies equally to claim 19.

As per claim 27, see claim 11.

Claim 33 of the instant application is fully encompassed by claim 14 of the US Patent. The analysis applied to claim 1 applies equally to claim 33.

5. Claims 1-3, 7, 11, 15, 17-19, 23, 27, 31-33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 8-13 and 17 of U.S. Patent No. 6,707,848. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application is fully encompassed by claim 1 of the US Patent. Given that fact, it would have been obvious to one skill in the art to only claim a few features of claim 1 of the US patent as a new claim 1 of the instant application so as to minimize cost to implement the claimed invention since it would have included less features therefore would have been less complex.

Claims 2 and 18 correspond to claim 2 of the patent. The analysis applied to claim 1 applies equally to claims 2 and 18.

Claim 3 of the instant application corresponds to claim 3 of the patent. The analysis applied to claim 1 applies equally to claim 3

Claims 7 and 23, of the instant application correspond to claim 4 of the patent. The analysis applied to claim 1 applies equally to claims 7 and 23.

Claim 11 of the instant application corresponds to claim 5 of the patent. The analysis applied to claim 1 applies equally to claim 11

Claim 15 of the instant application corresponds to claim 8 of the patent. The analysis applied to claim 1 applies equally to claim 15

Claim 17 of the instant application is fully encompassed by claim 9 of the US Patent. The analysis applied to claim 1 applies equally to claim 17.

Claim 18 corresponds to claim 10 of the patent. The analysis applied to claim 1 applies equally to claim 18.

Claim 19 of the instant application corresponds to claim 11 of the patent. The analysis applied to claim 1 applies equally to claim 19.

Claim 23 of the instant application corresponds to claim 12 of the patent. The analysis applied to claim 1 applies equally to claim 23.

Claim 27 of the instant application corresponds to claim 13 of the patent. The analysis applied to claim 1 applies equally to claim 27.

Claim 31 of the instant application corresponds to claim 17. The analysis applied to claim 1 applies equally to claim 31.

Claim 32 of the instant application corresponds to claim 17 of the patent. The analysis applied to claim 1 applies equally to claim 32.

Claim 33 of the instant application corresponds to claim 1 of the patent. The analysis applied to claim 1 applies equally to claim 33.

Claim Objections

6. Claim 32, two lines before last, shouldn't "(a) and (b)" be "(a) and (c)"? If so claim 32 would be the duplicate of claim 31 and will need to be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 7, 11, 17, 18, 23, 27 and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al US patent No. 5,809,071 in view of Lee US patent No. 6,055,119.

As per claim 1, Kobayashi et al teaches a feedforward equalizer 3 for equalizing a sequence of signal samples received inherently from a remote transmitter, the feedforward equalizer 3 having a gain and being included in a receiver see fig. 2, the receiver having a timing recovery module 6 for setting a sampling phase and a decoder 5, the feedforward equalizer 3 comprising: a non-adaptive filter (3a) receiving the signal samples and producing a filtered signal (note that the filter 3a is non-adaptive because it is not adaptive controlled); and a gain stage (3b) coupled to the non-adaptive filter 3a, the gain stage allowing adjustment of the gain of the feedforward equalizer by adjusting the level (amplitude) of the filtered signal, the level (amplitude) of the filtered signal being adjusted so as to fit in operational range of the decoder see col. 6, lines 43-54. ; However, Kobayashi et al does not teach the further limitations of "wherein the feedforward equalizer does not affect the sampling phase setting of the timing recovery module of the receiver". Lee teaches the apparatus in which the feedforward equalizer 13 does not affect the sampling phase setting of the timing recovery module 12 of the

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receiver fig. 1. See col. 1, line 65-col. 2, line 4. Given that fact, it would have been obvious to one skill in the art to modify Kobayashi et al so as to prevent the feedforward equalizer from affecting the sampling phase setting of the timing recovery module of the receiver as suggested by Lee in order to optimize sampling timing of the input signal as taught by Lee see col. 1, line 31.

As per claim 2, the feedforward equalizer inherently does not enhance noise.

As per claim 7, note that the function of the equalizer is to remove ISI induced by any source from the received signal and that would inherently includes ISI generated by a pulse shaping filter if such device was included in transmitter.

As per claim 11, it would have been obvious to one skill in the art to implement the equalizer as a programmable equalizer in order to be able to modify its characteristics parameter based on the changing channel condition so as to enhance signal processing.

As per claim 17, see claim 1.

As per claim 18, see claim 2.

As per claim 23, see claim 7.

As per claim 27, see claim 11.

As per claim 33, see claim 1.

9. Claims 3, 15, 19, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al US patent No. 5,809,071 in view of Lee US patent No. 6,055,119 and further in view of Awata et al US patent No. 5,638,409.

As per claim 3, as applied to claim 1 above Kobayashi et al and Lee disclose the invention substantially as claimed but does not explicitly teach the additional limitations of " wherein the non-adaptive filter produces a precursor included in the filtered signal, the precursor being an indicator preceding each of the signal samples to facilitate timing recovery". Awata teaches an apparatus in which a non-adaptive filter produces a precursor included in the filtered signal, the precursor being an indicator preceding each of the signal samples to facilitate timing recover see col. 2, lines 32-39. It would have been obvious to one skill in the art to incorporate such a teaching in Kobayashi et al and Lee so as to generate optimum sampling phase to sample the received signal as taught by Awata et al col. 2, lines 38-39.

As per claim 15, as applied to claim 1 above, Kobayashi et al and Lee disclose the invention substantially as claimed but does not explicitly teach the additional limitations " a noise cancellation stage, the noise cancellation stage subtracting from the filtered signal a noise signal received from a noise computing module of the receiver and producing a noise-reduced filtered signal". Awata teaches the noise cancellation stage 11 subtracting from the filtered signal a noise signal received from a noise computing module 22 of the receiver and producing a noise-reduced filtered signal fig. 3. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Kobayashi et al and Lee in order to minimize intersymbol interference.

As per claim 19, see claim 3.


As per claim 31, see claim 15.

As per claim 32, see claim 15.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jean B. Corrielus
Primary Examiner
Art Unit 2611

3-15-07